(d) Madhya Pradesh is connected to the Western Grid. Madhya Pradesh may also deviate from its drawal schedule from the Grid so long as the provisions contained in IEGC are met, and UI charges are paid.

Hydro-electric generation

2855. SHRI S.S. AHLUWALIA: Will the Minister of POWER be pleased to state:

(a) the details of the hydro-electric generation capacity installed under public and private sector in the country, State-wise;

(b) the details of the quantum of power generated by them during the last five years, indicating their contribution to the total electricity generated, year-wise;

(c) the details of estimated per MW investment cost of construction of hydroelectric generation facility, both in hilly terrain and as run-of-the-river projects in the plains;

(d) the details of estimated cost of generation per unit of electricity in the respective situations; and

(e) the average per unit cost of hydro-electric power paid by its consumers?

THE MINISTER OF POWER (SHRI SUSHILKUMAR SHINDE): (a) The details of the hydro-electric generation capacity installed in the public and private sector in the country, State-wise are given in the Statement-I (*See* below).

(b) As per information available, the details of the quantum of power generated by them during the last five years, indicating their contribution to the total electricity generated, year-wise are given in the Statement-II (*See* below).

(c) The cost of construction of hydro-electric projects is site specific. The estimated per Mega Watt (MW) investment cost of construction of 51 hydroelectric projects, both in hilly terrain and as run-of-the-river projects in the plans, as available with Central Electricity Authority (CEA), is given in the Statement-III (*See* below). This cost is based on constant prices, tentative financial package and exchange rates submitted by the promoters at the time of techno-economic clearance by CEA.

(d) The details of estimated cost of generation per unit of electricity, as available with CEA, for the years 2003-04 to 2005-06 in respect of various hydroelectric projects is given in Statement-IV (*See* below).

(e) The power generated by the thermal power plants, hydro power plants, nuclear power plants and other sources is pooled and fed to the grid and transmitted to distribution agencies in the States. The States have their own Regulatory Commissions to fix the tariff for consumers. The average per unit cost paid by the consumers is not determined separately for hydro power.

Statement-I

State-wise details of hydro electricity generation capacity installed under public and private ownership as on 31.08.2007

	(Utilities only)	(MW)
Name of the State	Ownership	
	Public Sector	Private Sector
1	2	
Delhi	585.06	0.00
Haryana	1331.40	0.00
Himachal Pradesh	1154.84	386.00
Jammu	1019.50	0.00
Punjab	3031.57	0.00
Rajasthan	1456.82	0.00
Uttar Pradesh	1605.49	0.00
Uttaranchal	1251.73	400.00
Chandigarh	47.04	0.00
Central Unallocated Share	401.70	0.00
SUB TOTAL - NR	11885.15	786.00
Goa	0.00	0.00
Daman and Diu	0.00	0.00
Gujarat	772.00	0.00
Madhya Pradesh	2898.67	0.00
Chhattisgarh	120.00	0.00
Maharashtra	2638.83	444.00
D and N Haveli	0.00	0.00
Central Unallocated Share	0.00	0.00
SUB TOTAL - WR	6429.50	444.00
Andhra Pradesh	3494.93	0.00
Karnataka	3288.20	0.00

1	2	3
Kerala	1769.10	0.00
Tamil Nadu	2093.95	0.00
NLC	0.00	0.00
Pondicherry	0.00	0.00
Lakshadweep	0.00	0.00
Central Unallocated Share	0.00	0.00
SUB TOTAL - SR	10646.18	0.00
Bihar	21.00	0.00
Jharkhand	138.00	0.00
West Bengal	589.00	0.00
DVC	150.00	0.00
Orissa	1917.93	0.00
Sikkim	8.00	0.00
A and N Islands	0.00	0.00
Central Unallocated Share	0.00	0.00
SUB TOTAL - ER	2823.93	0.00
Assam	431.00	0.00
Arunachal Pradesh	98.00	0.00
Meghalaya	229.00	0.00
Tripura	62.00	0.00
Manipur	81.00	0.00
Nagaland	53.00	0.00
Mizoram	34.00	0.00
Central Unallocated Share	128.00	0.00
SUB TOTAL - NER	1116.00	0.00
TOTAL ALL INDIA:	32900.76	1230.00

Note:- Public includes Hydro Electric Plants in the State and Central Sector.

Statement-II

Generation by public and private hydro plants (utilities) for the last five years from 2001-02 *to* 2005-06

SL No.	Year	All India	Public			Private		
		Generation (GWh)	Generation (GWh)	Public Gen. %age of		Generation (GWh)	Private Gen . %age of	
			Hydro	Hydro Generation	All India Generation	Hydro	Hydro Generation	All India Generation
1	2006-07(*)	667512.88	108272.8	95.51	16.22	5085.9	4.49	0.76
2	2005-06	623819.53	97767.54	96.33	15.67	3726.90	3.67	0.60
3	2004-05	594456.20	81541.12	96.37	13.72	3069.26	3.63	0.52
4	2003-04	565101.69	72290.21	96.08	12.79	2952.26	3.92	0.52
5	2002-03	532692.96	62179.90	97.14	11.67	1833.75	2.86	0.34

Note:- Public sector includes State and Central sector plants.

(*) Provisional

Statement-III

Capital cost/estimated tariff of CEA cleared Hydro Power Projects

Sl. No.	Name of the Project Name of the Promoter	Capacity (MW)	Cost/MW Rs. in Crs.
1	2	3	4
1	Baspa Stage II HEP M/s Jaiprakash Ind. Ltd.	300 (3*100)	3.16
2	Maheswar HEP	400 (10*40)	3.92
3	Vishnu Prayag H.E.P. M/s Jai Prakash Ind. Ltd.	400 (4*100)	4.03
4	Chamera HEP Stg. II M/s NHPC	300 (3*100)	4.55
5	Malana HEP M/s RSWML	86 (2*43)	3.98
6	Turial HEP Mizoram	60 (2*30)	7.47
7	Teesta GEB NHPC	510	4.95
8	Tuivai HEP M/s NEEPCO Ltd.	210	5.99
9	Loktak HEP NHPC	90 (3*30)	7.42
10	Myntdu St.I (Leishka) MeSEB	84 (2*42)	4.32
11	Maneribhali HEP II UP Jal Vidyut Nigam	304 (4*76)	4.11
12	Largi HEP (HPSEB)	126	6.33
13	Shrinagar HEP Duncans NHPC	330 (4*82.5)	5.15
14	Bairabi Dam HEP Power and Electricity Deptt. Mizoram	80.00 (2x40)	6.87
15	Parbati Stage-II HEP NHPC - H.P.	800.00 (4*200)	5.60
16	Balimela H.E. Expansion Unit 7 and 8 Orissa Hydro Power Corpn. (OHPC)	150.00 (2x75)	1.33
17	Dhamwari Sunda H.E.P Dhamwari Power Co. Ltd.	70.00 (2x35)	6.29

1	2	3	4
18	Almatti Dam Power House M/s KPCL	290.00 (1*15+5*55)	2.33
19	Kol Dam HEP NTPC	800.00 (4x200)	6.52
20	Allain Duhangan HEP M/s RSWM (H.P.)	192.00 (2x96)	4.80
21	Uhl Stage III HPSEB	100.00 (2*50)	4.32
22	Sewa HEP Stagell-NHPC J&K- only technical clearance	120.00 (3*40)	5.63
23	Teesta Low Dam Stage III NHPC (West Bengal)	132.00 (4*33)	5.93
24	Subansiri HEP NHPC/Ar. Pradesh	2000.00 (8*250)	3.30
25	Jalaput Dam Toe HEP M/s OPCL (Orissa)	18.00 3x6	3.43
26	Karcham Wangtoo HEP/H.P. Jaypee Karcham Hydro. Corp. Ltd.	1000.00 (4*250)	5.91
27	Tipaimukh HEP NEEPCO - Manipur	1500.00 (6*250)	3.44
28	Kishanganga HEP NHPC Techno Economic Appraisal Kishanganga HEP NHPC Revised Proposal	330.00 (3*110) 330.00 (3* 110)	9.66 7.95
29	Chamera HEP Stg. III NHPC	231 (3*77)	5.90
30	Parbati Stage III HEP NHPC	520.00 (4*130)	4.29
31	Teesta Low Dam Stage IV NHPC (West Bengal)	160.00 (4*40)	6.24
32	Uri II HEP - NHPC TEA - Present Day Cost	240.00 (4*60)	7.07
33	Nimoo Bazgo HEP TEA - Present Day Cost	45.00 (3*15)	14.03
34	Chutak HEP - NHPC TEA - Present Day Cost	44.00 (4*11)	14.90
35	Tapovan Vishnugad HEP NTPC - Current cost	520 (4*130)	4.90

1	2	3	4
36	Loharinag Pala HEP NTPC - Current cost	600 (4*150)	4.03
37	Matnar ROR HEP CSEB - Present Day Cost	60.00 (3*20)	5.22
38	Athirappilly HEP KSEB	163	2.37
39	Rampur HEP SJVNL	412 (6*68.67)	4.82
40	Lata Tapovan HEP NTPC-Present Day Cost	171 (3*57)	4.63
41	Teesta Stage III HEP Teesta Urja Ltd. (TUL)	1200.00 (6x200)	4.75
42	Rammam Stage III NTPC	120.00 (3*40)	5.28
43	Vishnugad Pipalkoti HEP THDC	444 (4*111)	4.71
44	Pakal Dul HEP NHPC-TEA	1000 (4*250)	5.09
45	Kotlibhel Stage lA NHPC	195 (3*65)	5.62
46	Kotlibhel Stage IB NHPC	320 (4*80)	5.65
9	Rev. Loktak Downstream HEP NHPC (Revised)	66 2*33)	13.15 8.64
47	Kotlibhel Stage-II NHPC	530 (8*66.25)	4.78
48	Teesta HEP Stage-VI Lanco Energy Pvt.Ltd.	500 (4*125)	6.57
49	Pala Maneri HEP UJVUNL	480 (4* 120)	4.01
50	Rangit St. IV HEP-Sikkim Jal Power Corp. Ltd.	120 (3*40)	6.05
51	Lower Jurala HEP - A.P APGENCO	240 (6*40)	3.78

The figures are based on constant prices, tentative financial package and exchange rates submitted by the promoters at the time of techno economic clearance.

Statement-IV

Cost of Energy Generation for Hydro Projects during 2003-04 *to* 2005-06

Generating Station/ Utility	Energy Source	Installed Capacity (MW)	Cost in Paise/KWh		
			2003-04	2004-05	2005-06
1	2	3	4	5	6
CENTRAL SECTOR					
BHAKRA BEAS MANAGEMENT BOARD					
Bhakra + Ganguwal + Kotla	HYDRO	1745.30	8.95	15.16	11.04
Dehar Power House	HYDRO	990.00	24.15	23.69	24.65
Pong Power Plant	HYDRO	264.00	10.66	14.46	7.28
DAMODAR VALLEY CORPORATION					
Maithon	HYDRO	60.00	83.14	141.45	147.40
Panchet	HYDRO	80.00	64.22	85.30	137.21
Tilaiya	HYDRO	4.00	407.30	339.69	1688.78
NARMADA HYDROELECTRIC DEV. COR. LTD.					
Indira Sagar Project (Joint ve. of MP+NHPC)	HYDRO	1000.00	74.64	93.84	84.87
NATIONAL HYDRO ELECTRIC POWER COR. LTD.					
Bairasiul	HYDRO	198.00	75.00	75.00	59.00
Loktak	HYDRO	90.00	87.00	70.00	85.00
Salai	HYDRO	690.00	52.00	40.00	37.00

1	2	3	4	5	6
Tanakpur	HYDRO	120.00	105.00	84.00	93.00
Chamera - I	HYDRO	540.00	113.00	96.00	73.00
Uri	HYDRO	480.00	143.00	125.00	112.00
Rangit	HYDRO	60.00	152.00	119.00	132.00
Chamera - II	HYDRO	300.00	371.00	167.00	135.00
Dhauliganga	HYDRO	280.00			188.00
NORTH EASTERN ELECT. POWER COR. LTD.					
Kopili Hydro Electric Project	HYDRO	275.00	54.00	48.00	47.00
Doyang	HYDRO	75.00	369.00	218.00	286.00
Ranganadi	HYDRO	405.00	171.00	87.00	93.00
SATLUJ JAL VIDYUT NIGAM LTD.					
Satlui Jai Vidyut Nigam Ltd.	HYDRO	1500.00	75.00	136.00	172.00
STATE SECTOR					
A. P. GENERA. COR. LTD. **	COAL/HYDRO		182.33	158.87	145.10
BIHAR STATE HYDROELECTRIC POWER COR.					
Kosi Hydel Power Station Kataiva, Birour (Supaul) £	HYDRO	18.00	94.00	167.00	36.00
Sone Western Link Canal H. E. Proiect, Dehri-On-Sone	HYDRO	6.60	141.00	141.00	111.00
Sone Eastern Link Canal H.E. Project, Barun (Aurangabad)	HYDRO	3.30	115.00	123.00	110.00
Eastern Gandak Canal H. E. Project, Valmikinagar	HYDRO	15.00	189.00	132.00	123.00

CHHATTISGARH STATE ELECY. BOARD					
HBHPS Machadoli Bango	HYDRO	120.00	25.00	26.00	28.00
HEP-General	HYDRO	5.00	NA	60.00	64.00
GUJARAT STATE ELECTRICITY LTD. COR					
Ukai	HYDRO	305.00	23.35	20.04	51.69
Kadana	HYDRO	242.00	397.23	45.07	147.56
HARYANA POWER COR LTD. GENERA					
Western Yamuna Canal	HYDRO	62.40	85.79	64.81	87.56
Kakroi	MICRO HYDEL		1617.93	1480.48	1616.13
HIMACHAL PRADESH STATE BOARD ELECY					
Giri Power House	HYDRO	60.00	69.00	81.00	65.00
Andhra Power House	HYDRO	16.95	158.00	201.00	174.00
Gumma Power House	HYDRO	3.00	671.00	1052.00	463.00
Bhaba/Sanja Power House	HYDRO	120.00	78.00	71.00	74.00
Nogil Power House	HYDRO	2.50	N.A	248.00	682.00
Ghanvi Power House	HYDRO	22.50	420.00	366.00	360.00
Bassi Power House	HYDRO	60.00	23.00	40.00	41.00
Binwa Power House	HYDRO	6.00	160.00	146.00	145.00
Gaj Power House	HYDRO	10.50	291.00	253.00	247.00
Baner Power House	HYDRO	12.00	319.00	274.00	274.00

1	2	3	4	5	6
Chamba Power House	HYDRO	1.75	117.00	129.00	107.00
Rukti Power House	HYDRO	1.50	470.00	607.00	677.00
Rongtong Power House	HYDRO	2.00	2695.00	1826.00	1459.00
Chamba Power House	HYDRO	0.45	206.00	401.00	180.00
Sal-II Power House	HYDRO	2.00	547.00	476.00	404.00
Killar Power House	HYDRO	0.30	1900.00	1262.00	1195.00
Holi Power House $	HYDRO		N.A	2902.00	959.00
Thirot Power House	HYDRO	4.50	2034.00	1582.00	1582.00
Larji Power House	HYDRO	126.00	N.A	N.A	N.A
JHARKHAND STATE ELECTRICITY BOARD					
S. R. H. P., Sikidiri	HYDRO	130.00	.46.62	47.00	115.00
KARNATAKA POWER CORPO. LTD.					
Sharavathy	HYDRO	1035.00	19.38	14.14	11.83
Linganamakki	HYDRO	55.00	19.38	14.14	86.51
Bhadra ((**))	HYDRO	39.20	19.38	14.14	48.79
Nagjhari	HYDRO	855.00	49.05	42.04	33.93
Supa	HYDRO	100.00	49.05	42.04	33.93
Ghataprabha	HYDRO	32.00	95.98	57.08	47.39

Varahi	HYDRO	230.00	63.33	51.33	54.62
Mani Dam Power House	HYDRO	9.00	63.33	51.33	54.62
Kalmala	HYDRO	0.40	278.32	173.61	146.38
Sirwar	HYDRO	1.00	278.32	173.61	146.38
Ganekal	HYDRO	0.35	278.32	173.61	146.38
Mallapur	HYDRO	9.00	278.32	173.61	146.38
Kappadgudda Wind Farm	HYDRO	4.55	187.35	181.87	190.37
Kadra	HYDRO	150.00	235.85	203.83	143.68
Kodasalli	HYDRO	120.00	165.30	156.20	107.57
BRBC Power House ((**)) $	HYDRO		862.11	167.78	75.77
Gerusoppa Power House	HYDRO	240.00	188.17	131.25	108.22
Almatti Dam Power House	HYDRO	290.00	3845.23	141.35	90.63
KERALA S. ELECY. BOARD **	HYDRO	2050.13	457.00	384.00	352.00
M.P.P.G.C.L., JABALPUR					
Gandhi Sagar	HYDRO	115.00	29.00	27.00	19.00
Pench	HYDRO	160.00	18.00	36.00	21.00
Raighat	HYDRO	45.00	129.00	317.00	83.00
Bargi	HYDRO	90.00	13.00	104.00	28.00
Tons	HYDRO	405.00	64.00	137.00	83.00
Sipara $	HYDRO		251.00	306.00	103.00

1	2	3	4	5	6
Devlond $	HYDRO		249.00	344.00	131.00
Birsingh pur	HYDRO	20.00	79.00	131.00	75.00
J Sagar	HYDRO	99.00	30.00	22.00	N.A.
R P Sagar	HYDRO	172.00	24.00	17.00	N.A.
MEGHALAYA STATE ELECY. BOARD					
MeSEB	HYDRO	185.20	97.55	82.29	96.62
NAGALAND, DEPT. OF POWER					
Dzuza MHP	HYDRO	1.50	198.00	198.00	198.00
Kithuri MHP	HYDRO	0.06	N.A.	N.A.	N.A.
Duilumroi MHP	HYDRO	0.54	211.00	211.00	211.00
Gekhu-Ghakhubu MHP	HYDRO	0.06	N.A.	N.A.	N.A.
Tsutha MHP	HYDRO	0.70	200.00	200.00	200.00
Duilumroi-II	HYDRO	0.20	211.00	211.00	211.00
Telangsao MHP	HYDRO	0.60	N.A.	N.A.	202.00
Likimro HEP	HYDRO	24.00	N.A.	175.00	175.00
ORISSA HYDRO POWER CORPORATION LTD.					
Hirakud Power System	HYDRO	331.50	48.57	67.84	64.72
Rengali H. E. Proiect	HYDRO	250.00	26.84	34.13	40.94
Upper Indravati H. E. Proiect	HYDRO	600.00	51.55	37.15	57.23

Upper Kolab H. E. Proiect	HYDRO	320.00	35.28	26.41	39.14
Balimela H. E. Proiect	HYDRO	360.00	25.86	23.52	39.37
PUNJAB STATE ELECTRICITY BOARD					
Ranjit Sagar Dam	HYDRO	600.00	439.57	545.69	291.48
Mukerian Hydel	HYDRO	207.00	57.72	66.34	42.93
U.B.D.C. Pathankot	HYDRO	91.35	73.44	86.42	49.12
Shanan Power House Joginder Nagar	HYDRO	110.00	16.93	19.59	20.81
Anandpur Sahib	HYDRO	134.00	39.59	81.00	43.86
Micro Hydel	HYDRO	3.90	327.30	663.61	243.92
RAJASTHAN RAJYA VIDYUT UTPADAN N. LTD.					
Mahi Hydel Power Station	HYDRO	140.00	205.69	160.33	116.14
Mini Micro Hydel Power Station	HYDRO	23.85	205.69	187.62	198.73
SIKKIM, ENERGY & POWER DEPTT.					
L L H P	HYDRO	12.00	53.12	63.98	129.77
J P H	HYDRO	2.10	204.40	180.32	947.21
Rimbi - I	HYDRO	0.60	126.52	374.05	589.58
Rongnichu - II	HYDRO	2.50	390.70	131.50	430.27
Chaten	HYDRO	0.10	N.A.	N.A.	N.A.
Meyong	HYDRO	4.00	39.94	99.21	108.55
Rimbi - II	HYDRO	1.00	151.77	106.22	N.A.

1		2	3	4	5	6
Upper - Ron gnichu		HYDRO	8.00	123.29	69.72	311.72
Kalez		HYDRO	2.00	N.A.	85.01	386.11
TAMIL NADU ELECTRICITY BOARD						
Hydro		HYDRO	2131.40	130.19	41.97	43.43
TRIPURA STATE ELECTRICITY COR. LTD.						
Gumti H. E. Proiect		HYDRO	15.00	44.44	43.74	59.74
UTTARANCHAL JAL VIDYUT NIGAM LIMITED						
Chibro	UPCL	HYDRO	240.00	37.00	37.00	25.15
	HPSEB			30.00	30.00	37.00
Khodri	UPCL	HYDRO	120.00	37.00	37.00	31.10
	HPSEB			30.00	30.00	37.00
Dhakrani	UPCL	HYDRO	33.75	37.00	37.00	37.19
	HPSEB			30.00	30.00	37.00
Dhalipur	UPCL	HYDRO	51.00	37.00	37.00	32.42
	HPSEB			30.00	30.00	37.00
Kulhal	UPCL	HYDRO	30.00	37.00	37.00	29.03
	HPSEB			30.00	30.00	37.00
Ramganga		HYDRO	198 .00	37.00	37.00	34.48

Khatima	HYDRO	41.40	37.00	37.00	23.21
Tiloth	HYDRO	90.00	37.00	37.00	38.69
Chilla	HYDRO	144.00	37.00	37.00	25.95
Pathri	HYDRO	20.40	37.00	37.00	37.00
Mohammadpur	HYDRO	9.30	37.00	37.00	37.00
Galogi	HYDRO	3.00	1.70	1.70	1.70
Small Hydro Projects $	HYDRO		1.70	1.70	1.70
WEST BENGAL STATE ELECY. BOARD					
Jaldhaka HEP	HYDRO	35.00	62.24	51.21	49.71
Ramam HEP	HYDRO	51.00	163.42	150.96	142.57
Teesta Canal Fallas	HYDRO	67.50	1679.22	1369.11	1048.62
PRIVATE SECTOR					
JAIPRAKASH HYDRO POWER LIMITED					
Baspa II H E P	HYDRO	300.00	236.00	236.00	183.00
MALANA POWER COMPANY LTD.					
Malaria HEP	HYDRO	86.00	298.00	282.00	264.00

NOTE:-

1. ** Projectwise break up not given by the concerned authority.
2. $ Installed Capacity not given by the concerned authority.
3. £ Data for Kosi Hydel Power Station (Bihar State Hydroelectric Corporation), is taken for the period from 2000-01 to 2002-03 from B.S.E.B.
4. ((**)) Bhadra and BRBC Power Houses together have installed capacity of 39.20 MW in Karnataka Power Corporation Ltd.